Contents

Chapter I—Nutrition

Effect of an Anabolic Steroid on the Efficacy of Total Parenteral Nutrition 1
Richard W. Danylewick, MD, Masoud Almasi, MD, and Harry M. Shizgal, MD, FACS

A Mechanism for Increased Toxicity of 5-Fluorouracil in the Malnourished Host 4
Michael A. Shinkwin, MB, FRCS(I), Robert E. Lenkinski, PhD, George A. Holland, MD, Herbert Y. Kressel, MD, and John M. Daly, MD, FACS

Glutamine Is Superior to Glutamate in Supporting Gut Metabolism, Stimulating Intestinal Glutaminase Activity, and Preventing Bacterial Translocation 6
Rabih M. Salloum, MD, Wiley W. Souba, MD, V. Suzanne Klimberg, MD, Donald A. Plumley, MD, David J. Dolson, MD, Kirby I. Bland, MD, and Edward M. Copeland III, MD

Glutamine-Enriched Parenteral Nutrition Is Safe in Normal Humans ... 9
Daniel K. Lowe, MD, FACS, Kathleen Benfell, RPh, Robert J. Smith, MD, Danny O. Jacobs, MD, Benjamin Murawski, PhD, Thomas R. Ziegler, MD, and Douglas W. Wilmore, MD, FACS

Alanine Utilization for Gluconeogenesis in Cancer: A ^{13}C NMR Study 11
Katherine J.M. Liu, MD, FACS, Thomas O. Henderson, PhD, Robert A. Kleps, PhD, Maria C. Reyes, BA, and Lloyd M. Nyhus, MD, FACS

Fermentable Fiber Stimulates Colonic Mucosal Cell Proliferation in an Experimental Model of Mucosal Ulcerative Colitis 13
J. Camilo Palacio, MD, Charles F. Barbera, BA, Juan A. DePaula, MD, Jeffrey M. Berman, BA, R. Gregg Settle, PhD, and John L. Rombeau, MD, FACS

Composition and Functional Consequences of Fiber and Glutamine Supplementation of Enteral Diets 15
Annabel E. Barber, MD, William G. Jones II, MD, Joseph P. Minei, MD, Lyle L. Moldawer, PhD, Thomas J. Fahey III, MD, Stephen F. Lowry, MD, FACS, and G. Tom Shires, MD, FACS

Development of a Bio-Artificial Pancreas Utilizing Transformed β-Cells 17
Barry A. Hicks, MD, Roland Stein, PhD, Naji N. Abumrad, MD, FACS, Phillip E. Williams, BS, David Wahoff, BS, and Achilles A. Demetriou, MD, PhD, FACS

Elemental Diet Promotes Spontaneous Bacterial Translocation and Alters Mortality After Endotoxin Challenge 20
William G. Jones II, MD, Joseph P. Minei, MD, Annabel E. Barber, MD, Lyle L. Moldawer, PhD, Thomas J. Fahey III, MD, G. Tom Shires III, MD, FACS, Stephen F. Lowry, MD, FACS, and G. Tom Shires, MD, FACS

Neurotensin Prevents Small Bowel Mucosal Atrophy Produced by an Elemental Diet 22
B. Mark Evers, MD, Homeira Mehrabian, BA, Courtney M. Townsend, Jr., MD, FACS, Tatsuo Uchida, MS, and James C. Thompson, MD, FACS

Sepsis-Induced Changes in Hepatic Triglyceride Synthesis 25
Ernest L. Rosato, BS, Alma Tabares, BS, and Susan Lanza-Jacoby, PhD

Morbid Obesity and Resting Energy Expenditure 27
Ali Alaud-Din, MD, Barbara Rhode, PDt, Lloyd D. MacLean, MD, FRCS(C), FACS, and R. Armour Forse, MD, PhD, FRCS(C), FACS

Chapter II—Critical Care

Elevated Temperature In Vitro Stimulates Total and Myofibrillar Protein Breakdown in Muscle from Septic Rats 30
Ulf Angerås, MD, Marianne Hall-Angerås, MD, Per-Olof Hasselgren, MD, and Josef E. Fischer, MD, FACS

Effects of Trauma on the Lymphocyte's Plasma Membrane Lipid Microviscosity 31
Dido Franceschi, MD, Debra Graham, MD, Deborah H. Kim, MSN, RN, Robert Gerding, MD, Martha Sarasua, MD, PhD, Karl Koehler, PhD, and Richard B. Fratianne, MD

Decreased Fascial Wound Strength Following Intraperitoneal Injection of Tissue Plasminogen Activator 34
Daniel P. Guyton, MD, FACS, Jeff Guy, Kim Sloan, and Douglas M. Evans, MD, FACS

Systemic Defibrinogenation Impairs Abdominal Abscess Formation... 36
Donna I. McRitchie, MD, and Ori D. Rotstein, MD, FRCS(C)

Growth Hormone Enhances Reepithelialization of Human Split-Thickness Skin Graft Donor Sites 37
Stanton K. Shernan, MD, Robert H. Demling, MD, Cheryl Lalonde, BS, Daniel K. Lowe, MD, Elof Eriksson, MD, and Douglas W. Wilmore, MD, FACS

Combined Hemorrhagic Shock and Head Injury: Effects of Hypertonic Saline (7.5%) Resuscitation 40
Felix D. Battistella, MD, and David H. Wisner, MD

Angiotensin-Converting Enzyme Inhibition and Hemorrhagic Shock: Effects on Hemodynamics, Organ Perfusion, and Gastric Mucosal Injury 43
Joseph J. Cullen, MD, Kimberly Ephgrave, MD, and Rachel Kleiman-Wexler, PharmD

Myocardial pH and Coronary Perfusion Pressure as Indicators of Survival During Cardiopulmonary Resuscitation..... 46
Joseph A. Dearani, MD, Kamal R. Khabbaz, MD, Trevor C. Axford, MD, J. Alan Wolfe, MD, Carolyn Marquardt, BA, Manisha Patel, BA, Ben Chun, BS, Richard Samson, BS, Arden Mackenthun, PhD, Lawrence Shaw, MD, and Shukri F. Khuri, MD, FACS

Hydroxyethyl Starch Macromolecules Protect Against Increases in Microvascular Permeability Following Ischemia-Reperfusion Injury... 48
Mehmet C. Oz, MD, Bashir A. Zikria, MD, Paul F. McLeod, MD, Michael F. FitzPatrick, MS, Walter N. Duran, PhD, and Thomas C. King, MD

Differential Metabolic Response of Myocardial Versus Skeletal Muscle During Catabolic Postburn Infection..... 50
Michael A. Marano, MD, Yuman Fong, MD, Lyle L. Moldawer, PhD, Wei He, MD, Annabel E. Barber, MD, Jeffrey E. Gershenwald, BS, Donald A. Fischman, MD, and Stephen F. Lowry, MD, FACS

Noninvasive Cardiac Output Measurement 52
Steven B. Wilkins, MD, Joseph M. Van De Water, MD, John Horowitz, MD, Mitchell P. Fink, MD, Xiang Wang, PhD, and Hun H. Sun, PhD

The Limit of Hemodilutional Resuscitation in Acute Hemorrhagic Shock 54
Jeffrey J. Pelton, MD, Henry W. Cheu, MD, and Clyde E. McAuley, MD

Chapter III—Infection and Its Mediators

Interleukin-6, a Potent Immunoregulatory Cytokine in Burn Patient Serum 58
Ying Guo, MD, Steven Wiener, MD, Richard A. Winchurch, PhD, William H. Adler, MD, and Andrew M. Munster, MD, FACS

Interleukin-1 Induces Late Myocardial Tolerance to Ischemia-Reperfusion by Inciting Early Cardiac Oxidant Stress and Neutrophil Accumulation..... 60
James M. Brown, MD, Michael A. Grosso, MD, Paul F. Shanley, MD, Anirban Banerjee, PhD, David Mulvin, MD, Benjamin O. Anderson, MD, Glenn J.R. Whitman, MD, John E. Repine, MD, and Alden H. Harken, MD

Splenectomy Abolishes the Diuresis Associated with Tumor Necrosis Factor 62
Joseph B. van Lanschot, MD, Kenneth Mealy, FRCS(I), D. Andrew Evans, FRCS(E), Danny O. Jacobs, MD, and Douglas W. Wilmore, MD

Transforming Growth Factor-Beta Downregulates Kupffer Cell Response to Endotoxin 65
Ronald D. Curran, MD, Timothy R. Billiar, MD, Brandon G. Bentz, BS, and Richard L. Simmons, MD, FACS

Insulin-like Growth Factor I Has a Major Role in Wound Healing 68
Henrik Steenfos, MD, E. Martin Spencer, MD, PhD, and Thomas K. Hunt, MD, FACS

Can Interleukin-1 Improve the Immune Deficiency Associated with Thermal Injury? 70
Brid M. Crowley, MB, FRCS(I), Kevin Ellwanger, BS, Kathryn Collins, BS, John A. Mannick, MD, FACS, and Mary L. Rodrick, PhD

Detection of a Novel Cytokine in Wound Chambers by the Polymerase Chain Reaction 73
Thomas J. Fahey III, MD, Sander van Deventer, MD, Barbara Sherry, PhD, Joseph P. Minei, MD, William G. Jones II, MD, Kevin J. Tracey, MD, Anthony Cerami, PhD, and G. Tom Shires, MD, FACS

Lipopolysaccharide and Tumor Necrosis Factor Reduce Delayed-type Hypersensitivity Response but Not Humoral and Nonspecific Host Defense 75
Leopoldo Sanchez-Cantu, MD, Harold N. Rode, PhD, and Nicolas V. Christou, MD, PhD

Washout with Oxygen-Depleted Perfusate Obliterates Reperfusion Injury in Ischemic Livers 77
Thomas R. Walsh, MD, Prakash N. Rao, PhD, Randy Rubin, BS, James Snyder, BS, and Leonard Makowka, MD, PhD, FACS

Cytokine Protection Against Tumor Necrosis Factor Lethality 80
Brett C. Sheppard, MD, and Jeffrey A. Norton, MD, FACS

Ibuprofen Attenuates the Enhanced Respiratory Burst and Alveolar-Capillary Membrane Permeability in Porcine ARDS 83
P. Declan Carey, MB, FRCS(I), John K. Jenkins, MD, Karl Byrne, MB, FRCS(I), Andrew Schneider, AB, Tim D. Sielaff, MD, Alpha A. Fowler, MD, and Harvey J. Sugerman, MD, FACS

Role of Oxygen Free Radicals in the Pathogenesis of Bacterial Peritonitis 86
Steven M. Schwartz, MD, Whitney L. Limm, MD, Daniel R. Margulies, MD, and J. Judson McNamara, MD, FACS

Decreased Mesenteric Blood Flow Independently Promotes Bacterial Translocation in Chronically Instrumented Sheep 88
Stephen E. Morris, MD, Neville Navaratnam, MD, Courtney M. Townsend, Jr., MD, FACS, and David N. Herndon, MD, FACS

Fate of Bacteria Absorbed from the Gut During Hemorrhagic Shock .. 91
Jay A. Redan, MD, Benjamin F. Rush, MD, FACS, George W. Machiedo, MD, FACS, David H. Livingston, MD, Thomas W. Lysz, PhD, Thomas F. Murphy, MS, George S. Dikdan, MS, and Sharon Smith, PhD

Intestinal Permeability with Hemorrhagic Shock, Surgical Trauma, and Endotoxemia 93
David J. Hurlbut, MD, Robert Zhong, MD, Pengzhi Wang, MD, Huifang Chen, MD, Bertha Garcia, MD, FRCP(C), David R. Grant, MD, FRCS(C), and John H. Duff, MD, FRCS(C), FACS

Restoration of Delayed-type Hypersensitivity Reaction by an Immune Modulator Following Thermal Injury 95
Riyad Karmy-Jones, MD, Douglas Hinson, MD, Horace F. Henriques III, MD, Leo Einck, PhD, Samir M. Fakhry, MD, and Ralph G. DePalma, MD, FACS

Surgical Infection Alters Major Histocompatibility Antigen Expression on Murine Lymphocytes 97
Young D. Kim, MD, Susan Galandiuk, MD, and Hiram C. Polk, Jr., MD, FACS

Differential Sensitivity of Macrophages and T-Cells to Protein Malnutrition 99
John V. Reynolds, FRCS(I), Norihiro Ueno, MD, Jian Shou, MD, Moritz M. Ziegler, MD, FACS, Richard B. Johnston, Jr., MD, and John M. Daly, MD

Increased Susceptibility to Sepsis Following Hemorrhage: Defective Kupffer Cell–Mediated Antigen Presentation 102
Alfred Ayala, PhD, Michelle M. Perrin, and Irshad H. Chaudry, PhD

LY203647, a Selective Leukotriene C4/D4 Antagonist, Improves Pulmonary Function and Mesenteric Perfusion in a Porcine Model of Endotoxic Shock and ARDS 105
Stephen M. Cohn, MD, Keith L. Kruithoff, BS, Heidie R. Rothschild, BS, Hailong Wang, MD, Jan B. Antonsson, MD, and Mitchell P. Fink, MD, FACS

Inhibition of Neutrophil Adherence in Sepsis.....107
William J. Mileski, MD, Robert K. Winn, PhD,
John M. Harlan, MD, and Charles L. Rice, MD, FACS

Bacteroides fragilis Inhibits Macrophage Procoagulant Activity Induced by *E coli* Endotoxin.....109
Ori D. Rotstein, MD, FRCS(C), and Tito Vittorini, BSc

Myofibrillar Protease Activity and Protein Breakdown in Skeletal Muscle from Septic Rats.....111
Marianne Hall-Angerås, MD, Ulf Angerås, MD,
Per-Olof Hasselgren, MD, and Josef E. Fischer, MD, FACS

Chapter IV—Gastrointestinal Tract, Pancreas, and Biliary Tract

Leukotrienes May Mediate Ethanol-Induced Vascular Injury in the Esophagus.....114
Barbara L. Bass, MD, Adam J. Dziki, MD, PhD,
Beverly A. Fischer, MD, Eugene Schweitzer, MD,
Richard A. Malthaner, MD, Carla Richardson, BS, and
John W. Harmon, MD, FACS

Carbachol Causes Acid and Potassium Efflux but Not HCO_3^- Secretion in the Canine Heidenhain Pouch.....116
Merril T. Dayton, MD, FACS, and Kenneth R. Larson, PhD

Pancreatic Transplantation Normalizes Gastric Emptying in Diabetic Rats.....118
Allan M. Roza, MD, FRCS(C), Thomas Nowak, MD,
John Weisbruch, BS, Christopher Johnson, MD, and
Mark B. Adams, MD, FACS

Differential Trophic Regulation of Cultured Fetal Gastric Epithelial Cells by Amniotic Fluid Peptide Factors 120
Susan L. Orloff, MD, and Sean J. Mulvihill, MD

Effect of Adenosine and Its Metabolites on Gastric Vascular Resistance in the Dog 122
Susan M. Mitchell, MD, John G. Wood, PhD, Genon Wicina, BA, and Laurence Y. Cheung, MD, FACS

Role of Proton Transport in Duodenal Resistance to Acid-Induced Injury 124
Edward H. Livingston, MD, Edward P. Passaro, MD, FACS, and Paul H. Guth, MD, FACP

Effect of CT Density on Fragmentation of Gallstones by Lithotripsy 127
Todd W. Arends, MD, Albert A. Nemcek, MD, Robert V. Rege, MD, FACS, and David L. Nahrwold, MD, FACS

A Role for Neurotensin in Prostaglandin Production in Canine Gallbladders Following Hypovolemic and Septic Shock 129
Bernard S. Harrison, MD, Wydell L. Williams, Jr., MD, William L. Weaver, MD, Frank Hatcher, PhD, and Eddie L. Hoover, MD, FACS

Topical Arachidonic Acid Decreases Surface Epithelial Cell Injury in Gastric Mucosa Exposed to Bile Acid 132
Daniel T. Dempsey, MD, Cathy Contreras, MD, Richard Milner, BS, and Wallace P. Ritchie, MD, PhD, FACS

Variable Splanchnic Vascular Effects of Cyclooxygenase Blockade in Portal Hypertension 134
Kurtis A. Campbell, MD, Yuping Wu, MD, and James V. Sitzmann, MD, FACS

Substance P in the Canine Distal Esophagus 136
Anthony D. Sandler, MD, James W. Maher, MD, FACS, Joel V. Weinstock, MD, Jerry F. Schlegel, BS, Jean Y. Jew, MD, and Terrence H. Williams, MD

A Role for Calcitonin Gene-Related Peptide–Containing Neurons in Gastric Cytoprotection..... 138
John L. Gray, MD, Susan L. Orloff, MD, Nigel W. Bunnett, PhD, Robin L. Troyer, BS, Sean J. Mulvihill, MD, and Haile T. Debas, MD, FRCS(C), FACS

Effect of L-364,718 on Pancreatic Regeneration Following 60% Pancreatectomy..... 140
Mika N. Sinanan, MD, and Richard Garcia

Chemical Ablation of Canine Gallbladder Mucosa 142
Jeffrey A. Barteau, MD, Nathaniel J. Soper, MD, James M. Becker, MD, FACS, Eun Lee, MD, and Samuel A. Wells, Jr., MD, FACS

Oxygen Radical–Mediated Acute Pancreatitis: A Pathogenic Role for Histamine 144
Hans P. Friedl, MD, PhD, Michael G. Caty, MD, Karen S. Guice, MD, FACS, Keith T. Oldham, MD, FACS, and Gerd O. Till, MD

Lovastatin Prevents Cholesterol Gallstone Formation..... 146
Kimberly D. Saunders, MD, Mohammad Z. Abedin, PhD, Sheila Rege, MD, Sarkis F. Festekdjian, BA, Warren Howard, BA, and Joel J. Roslyn, MD, FACS

Does Truncal Vagotomy Change the In Vitro Contractile Properties of Gallbladder Muscle?..... 148
John D. Cunningham, MD, James P. Ryan, PhD, Daniel T. Dempsey, MD, and Wallace P. Ritchie, Jr., MD, PhD, FACS

Cholecystokinin Release and Gallbladder Contractility After Vagotomy in Humans.....150
William H. Nealon, MD, FACS, J. Robert Upp, Jr., MD, and James C. Thompson, MD, FACS

Correlation of High-Energy Phosphate Metabolism and Electron Microscopic Morphologic Changes in Acute Experimental Pancreatitis.....152
Jeffrey A. Clemens, MD, Vaddappuram P. Chacko, PhD, Jean L. Olson, MD, and John L. Cameron, MD

Reduction in Bile Secretory Immunoglobulin A During Cholecystitis.....155
Melody O'Connor Allen, MD, FACS, David Cherwitz, MD, Richard Charboneau, and Eugene Freeman

Endogenous Gallbladder Prostaglandin Biosynthesis Is Not Related to Gallstone Formation in the Prairie Dog Fed a High-Cholesterol Diet.157
Stuart I. Myers, MD, FACS, Yong F. Li, MD, Norman W. Weisbrodt, PhD, Diane H. Russell, PhD, and Frank G. Moody, MD, FACS

Effect of Amino Acid Content on TPN-Induced Gallbladder Disease.....159
Thomas H. Magnuson, MD, Keith D. Lillemoe, MD, FACS, Rhett C. High, MD, Beth A. Zarkin, MD, and Henry A. Pitt, MD, FACS

Peptide YY: A Potent Inhibitor of Biliary Secretion 161
John S. Minasi, MD, Mia S. Taylor, BS, Shosaku Nakahara, MD, John H.T. Waldhausen, MD, R. Scott Jones, MD, FACS, and Bruce D. Schirmer, MD, FACS

Galanin: A Neuropeptide Inhibitor of the Exocrine Pancreas.....163
Mary A. Powers, MD, and Theodore N. Pappas, MD

Small Bowell Resection Enhances Growth of Transplanted Fetal Intestine 165
Beverly A. Fischer, MD, Barbara L. Bass, MD, Richard A. Malthaner, MD, Carla J. Richardson, BA, Adam J. Dziki, MD, PhD, Faris Z. Hakki, MD, and John W. Harmon, MD, FACS

Effect of Jejunoileal Autotransplantation (Extrinsic Denervation) on Postprandial Pancreatobiliary Secretion 168
Nathaniel J. Soper, MD, Michael G. Sarr, MD, FACS, Eugene P. DiMagno, MD, Keith A. Kelly, MD, and Vay Liang W. Go, MD

Abnormal DNA Ploidy in Colonic Mucosa Adjacent to Colorectal Cancer 170
Sing Shang Ngoi, MBBS, FRCS(E), Lisa Staiano-Coico, PhD, Ronald J. Wong, MD, and Jerome J. DeCosse, MD, FACS

Effect of Extrinsic Denervation on Jejunal Handling of Water and Electrolytes in the Rat 172
Keichu Kimura, MD, Charles A. LaRosa, MD, and Bernard M. Jaffe, MD, FACS

Glutamine-Enriched Total Parenteral Nutrition Supports Gut Metabolism 175
V. Suzanne Klimberg, MD, Wiley W. Souba, MD, Harry Sitren, PhD, Donald A. Plumley, MD, Rabih M. Salloum, MD, R. Dean Hautamaki, MD, Kirby I. Bland, MD, and Edward M. Copeland III, MD

cAMP-Mediated Release of PYY from the Isolated Perfused Colon: Evidence for Negative Feedback Modulation of Colonic Secretion ... 177
Paul E. Savoca, MD, Garth H. Ballantyne, MD, Anton J. Bilchik, MD, and Irvin M. Modlin, MD

Inhibition of Small Intestinal Fed Motility by the Selective Cholecystokinin Antagonist, L-364,718 180
William Richards, MD, Tim Robarts, MD, Kenneth Parish, MD, Susan Elks, BS, and Lester F. Williams, Jr., MD

Atropine Inhibits the Postprandial Circulating Release of Neuropeptide Y in Conscious Dogs 182
David W. McFadden, MD, Marek Rudnicki, MD, Michael S. Nussbaum, MD, Ambikaipakan Balasubramaniam, PhD, Ramesh Dayal, MS, and Josef E. Fischer, MD, FACS

Paracrine Modulation of Vasoactive Intestinal Polypeptide–Stimulated Ion Transport by Peptide YY in the Rabbit Distal Colon 184
Francis X. Fleming, MD, Garth H. Ballantyne, MD, Barry J. Pernikoff, MD, James R. Goldenring, MD, PhD, Lawrence P. Fielding, MD, and Irvin M. Modlin, MD

Simple Mechanical Intestinal Obstruction Induces Translocation of Gram-Negative Bacteria to the Mesenteric Lymph Nodes 186
Michael A. Maddaus, MD, Carol Wells, PhD, Timothy Billiar, MD, and Richard S. Simmons, MD

Influence of Gastric Distention and Meal Composition on Jejunal Absorption 189
J. Augusto Bastidas, MD, Charles J. Yeo, MD, FACS, Robert E. Schmieg, Jr., MD, Jaime A. Bastidas, BS, Marlene S. Orandle, BA, and Michael J. Zinner, MD, FACS

Chapter V—Cardiothoracic Surgery

Bypass During Thoracic Aortic Clamping: Effects on Intracranial Pressure 191
Gus J. Vlahakes, MD, David K. Kaplan, MBBS, FRCS, Mortimer J. Buckley, MD, FACS, Michael N. D'Ambra, MD, Naotaka Atsumi, MD, and W. Gerald Austen, MD, FACS

Partial Exsanguination Effectively Controls Proximal Hypertension and Protects the Spinal Cord During Thoracic Aortic Cross-Clamping.... 193
Thomas T. Woloszyn, MD, Corrado P. Marini, MD, Matthew S. Coons, MD, Leonard Tachmes, MD, Ira M. Nathan, PhD, Anthony J. Acinapura, MD, FACS, and Joseph N. Cunningham, MD, FACS

Spinal Cord Protection by Balloon Occlusion of the Distal Aorta During Proximal Aortic Cross-Clamping 196
You Su Sun, MD, Robert M. Lust, PhD, Paul A. Spence, MD, Hiroshi Iida, MD, Samuel B. Pollock, MD, J. Mark Williams, MD, and Erle H. Austin, MD

Relative Sensitivity of the Clotting Cascade to Hypothermia 199
Thomas D. Johnston, MD, Ying Chen, MS, and R. Lawrence Reed II, MD, FACS

Reversible Platelet Dysfunction Following Cardiopulmonary Bypass: A Temperature-Dependent Defect in Platelet Membrane Thromboxane A_2 Synthesis 201
Kamal R. Khabbaz, MD, Carolyn A. Marquardt, BA, J. Alan Wolfe, MD, Gina Ragno, James D. Fonger, MD, Trevor C. Axford, MD, Joseph A. Dearani, MD, C. Robert Valeri, MD, and Shukri F. Khuri, MD, FACS

Cardiopulmonary Bypass Induces Early Changes in Circulating Leukocyte Cytotoxicity 204
Hani Shennib, MD, FRCS(C), Dao Nguyen, MD, Isabelle Rajotte, and David S. Mulder, MD, FRCS(C), FACS

Reduction of Myocardial Oxygen Consumption During Left Atrial to Aortic Bypass: Are Pulsatility and Synchronization Important? 206
Paul K. Davis, MD, Walter E. Pae, MD, FACS, Cynthia A. Miller, BS, and Salvatore A. Parascandola, MD

Efficacy of Dynamic Cardiomyoplasty in Heart Failure Associated with Pulmonary Hypertension 207
Andrew B. Hill, MD, Carlos M. Li, MD, Carolyne Desrosiers, BSc, and Ray C.-J. Chiu, MD, PhD, FRCS(C), FACS

Afterload Reduction by Skeletal Muscle-Powered Extraaortic Counterpulsation 210
K. Francis Lee, MD, Scott A. Hanan, MD, Gert E. Tuchy, MD, Ivan M. Rebeyka, MD, FRCS(C), Thomas Yeh, Jr., MD, Marcos R. Borges, MD, Q. Ye, BS, Anwar S. Abd-Elfattah, PhD, and Andrew S. Wechsler, MD, FACS

Ablation of Atrial Fibrillation by the Maze Procedure 213
Constance M. Stone, MD, Byung-Chul Chang, MD, James S. Tweddell, MD, Shigeo Sato, MD, Richard B. Schuessler, PhD, Benico Barzilai, MD, John P. Boineau, MD, and James L. Cox, MD, FACS

Focal Cryoablation Guided Solely by Intraoperative Potential Mapping Ablates Ventricular Tachycardia of Endocardial Origin 216
James S. Tweddell, MD, Barry H. Branham, MS, Constance M. Stone, MD, Richard B. Schuessler, PhD, John P. Boineau, MD, and James L. Cox, MD, FACS

Ventricular Tachycardia in an Ovine Model of Left Ventricular Aneurysm 219
Gerhard Kreiner, MD, Charles D. Gottlieb, MD, I-Tien Yeh, MD, Satoshi Furukawa, MD, John M. Miller, MD, L. Henry Edmunds, Jr., MD, FACS, Joseph E. Bavaria, MD, Robert C. Bernstein, MD, W. Clark Hargrove III, MD, FACS, and George S. Tyson, MD

Regional Myocardial Wall Curvature, Stress, and Compliance During Coronary Artery Occlusion in Conscious Dogs 221
Clarence H. Owen, MD, Joseph R. Elbeery, MD, Michael A. Savitt, MD, R. Fredrick Williams, MD, and Peter VanTrigt, MD

Adrenergic Regulation of the Coronary Microcirculation 225
Frank W. Sellke, MD, Peter Banitt, MD, and David G. Harrison, MD

Effect of Coronary Collateral Recruitment on Ventricular Recovery After Brief Coronary Occlusion in Dogs and Swine 227
Scott A. Hanan, MD, Michael E. Jessen, MD, FRCS(C), Gert E. Tuchy, MD, Anwar S. Abd-Elfattah, PhD, and Andrew S. Wechsler, MD, FACS

Accumulation of Myocardial Cytoplasmic Calcium in the Newborn and Adult During Ischemia 229
Ernesto Jimenez, MD, Pedro J. del Nido, MD, Meeta Sarin, BS, Hiroomi Nakamura, MD, Sidney Levitsky, MD, FACS, and Harold Feinberg, PhD

Role of Adenosine in the Coronary Hyperemic Response to Acute Hypoxia 232
Jitendra Sodhi, MD, Robert J. Weiss, MD, Robert D. Lasley, BA, Robert M. Mentzer, Jr., MD, FACS, and David G. L. Van Wylen, PhD

Effect of Preischemic Inotropic Stimulation on Postischemic Myocardial Recovery.....234
Medhat W. Takla, MD, John C. Alexander, MD, FACS, Carl E. Arentzen, MD, and Robert W. Anderson, MD, FACS

Effect of Intracoronary Pyruvate on Regional Myocardial Function, Coronary Blood Flow, and Cardiac Interstitial Fluid Adenosine Concentration.....236
David G.L. Van Wylen, PhD, Jitendra Sodhi, MD, Robert J. Weiss, MD, Robert D. Lasley, BA, and Robert M. Mentzer, Jr., MD, FACS

The Intracellular Calcium Chelator BAPTA Prolongs the Onset and Decreases the Force of Ischemic Contracture.....238
Hiroomi Nakamura, MD, Pedro J. del Nido, MD, Ernesto Jimenez, MD, Meeta Sarin, BS, Harold Feinberg, PhD, and Sidney Levitsky, MD, FACS

Temporary Coronary Sinus Occlusion Improves the Distribution of Antegrade Cardioplegia, Regional Myocardial Function, and Infarct Size Following Acute Coronary Occlusion 241
Shu-Ching Sun, MD, Maurizio Diaco, MD, Paolo Masetti, MD, Rita G. Laurence, BS, Gregory S. Couper, MD, Verdi J. DiSesa, MD, FACS, and Lawrence H. Cohn, MD, FACS

Rapid Cooling Contracture of the Myocardium: Adverse Effect of Prearrest Cardiac Cooling 243
Ivan M. Rebeyka, MD, FRCS(C), Scott A. Hanan, MD, Marcos R. Borges, MD, K. Francis Lee, MD, Thomas Yeh, Jr., MD, Gert A. Tuchy, MD, Anwar S. Abd-Elfattah, PhD, William G. Williams, MD, FRCS(C), and Andrew S. Wechsler, MD, FACS

Improved Hypothermic Storage with University of Wisconsin Solution 246
Stephen E. Fremes, MD, FRCS(C), Ren-Ke Li, MD, Richard D. Weisel, MD, FRCS(C), Donald A.G. Mickle, MD, FRCP(C), and Laura C. Tumiati, BSc

Assessment of Myocardial Perfusion During Coronary Artery Bypass Graft Operations in Humans Using Myocardial Contrast Echocardiography 248
Thomas L. Matthew, MD, Mark W. Keller, MD, Sanjiv Kaul, MD, and William D. Spotnitz, MD, FACS

Pulmonary Leukosequestration and Lung Edema After Severe Smoke Inhalation Injury Are Not Improved with Extracorporeal Membrane Oxygenation 251
Paul K. Minifee, MD, Joseph B. Zwischenberger, MD, Greg R. Flick, MD, Neville Navaratnam, FRCS, Hugo A. Linares, MD, Patricia L. Allison, RN, and David N. Herndon, MD, FACS

Pulmonary Vascular Effects of Pulsatile and Nonpulsatile Mechanical Right Ventricular Assistance 254
Wayne E. Richenbacher, MD, William S. Pierce, MD, FACS, Michael Jurmann, MD, David B. Robins, MD, Cynthia A. Miller, BS, Robert K. Wise, BS, and John A. Waldhausen, MD, FACS

Dextran-40 Improves Transplanted Lung Bronchial Viability 256
S.H. Keshavjee, MD, F. Yamazaki, MD, H. Yokomise, MD, P. Cardoso, MD, J.B.M. Mullen, MD, FRCP(C), A.S. Slutsky, MD, and G.A. Patterson, MD, FRCS(C), FACS

Localized Acid Aspiration Leads to Thromboxyane-Dependent Generalized Pulmonary Edema 258
Gideon Goldman, MD, Richard Welbourn, MB, FRCS, Joseph M. Klausner, MD, Ian S. Paterson, MB, FRCS, Lester Kobzik, MD, David Shepro, PhD, and Herbert B. Hechtman, MD

Twenty-Four-Hour Pumpless, Heparinless, Arteriovenous CO_2 Removal 261
Luke A. Faber, MD, David P. Kapelanski, MD, Scott D. Niles, Melanie E. Gunn, and Michael J. Perelman, MD

Autoregulation of Total and Regional Cerebral Blood Flow During Deep Hypothermic Cardiopulmonary Bypass 264
Vincent K.H. Tam, MD, Hideo Takahashi, MD, Wen Cheng, MD, Richard J. Traystman, PhD, and Duke E. Cameron, MD

Cerebroplegia Protects the Brain During Two Hours of Circulatory Arrest 266
Robert C. Robbins, MD, Robert S. Balaban, PhD, and Julie A. Swain, MD, FACS

Complete Heart Block and AV-Sequential Pacing in Fetal Lambs: The Atrial Contribution to Combined Ventricular Output in the Fetus 268
Timothy M. Crombleholme, MD, Michael T. Longaker, MD, Jacob C. Langer, MD, Scott M. Bradley, MD, Brian W. Duncan, MD, N. Scott Adzick, MD, Edward D. Verrier, MD, and Michael R. Harrison, MD, FACS

Neonatal Functional Tolerance to Ischemia-Reperfusion May Be Induced in Adult Myocardium by 5′-Nucleotidase Inhibition 271
Michael A. Grosso, MD, Anirban Banerjee, PhD, James M. Brown, MD, David Mulvin, MD, Glenn J.R. Whitman, MD, Kevin Rogers, BS, David N. Campbell, MD, David R. Clarke, MD, and Alden H. Harken, MD, FACS

Blood Flow in Surgically Created Systemic to Pulmonary Artery Shunts: Effects of Graft Size and Origin from the Subclavian Artery.....274
Erle H. Austin, MD, Eric R. Skipper, MD, Hiroshi Iida, MD, You Su Sun, MD, Yasushi Kasagi, MD, and Robert M. Lust, PhD

Filler-Free Silicone Rubber Dacron Grafts for Use in Right Ventricular Outflow Tract Reconstruction 276
John L. Myers, MD, FACS, Wayne E. Richenbacher, MD, William S. Pierce, MD, FACS, Marie M. Gleason, MD, G. Allen Prophet, BS, and John A. Waldhausen, MD, FACS

Inhibition of Platelet Adhesion to an Artificial Microvascular Conduit Using Membrane Glycoprotein-Masking Agents.....278
Richard A. Sheppeck, MD, Peter C. Johnson, MD, Harvey S. Borovetz, PhD, and Trevor MacPherson, MD

Chapter VI—Vascular Surgery

Lipoprotein Profiles of Patients with Recurrent Carotid Stenosis 281
Nicholas Colyvas, MD, Nancy R. Phillips, PhD, Ronald J. Stoney, MD, Richard J. Havel, MD, and Joseph H. Rapp, MD

Preliminary Characterization of an Elastase from Aneurysmal Aorta Which Degrades Aortic Elastin.....283
Jeffrey M. Reilly, MD, Colleen M. Brophy, MD, and M. David Tilson, MD, FACS

Artery Wall Restructuring in Response to Increased Flow.....285
Hirotake Masuda, MD, Hisham Bassiouny, MD, Seymour Glagov, MD, and Christopher K. Zarins, MD

Low-Density Lipoprotein Incorporation and Catabolism Along the Aortic Bifurcation 287
Scott A. Berceli, BS, Richard A. Sheppeck, MD, ViJay S. Warty, PhD, Sureka K. Tanksale, BS, and Harvey S. Borovetz, PhD

High-Dose Dietary Marine Oil Inhibits Atherosclerosis in Diet-Induced Hypercholesterolemic Rabbits 290
Christian T. Campos, MD, Van N. Michalek, BA, Jose M. Fulco, MD, John P. Matts, PhD, and Henry Buchwald, MD, PhD, FACS

Synergistic Effect of Hypercholesterolemia and Temporary Aortic Occlusion on Limb Endothelial Permeability in the Rabbit 293
Jonathan P. Gertler, MD, Ian M. Sarembock, MD, Jeffrey Sussman, MD, and Michael D. Ezekowitz, FRCP, PhD

Effect of One Hour of Ischemia on Neutrophil Chemotaxis 295
Hisham El-Bayar, MD, Lisa Smith, and Julie Freischlag, MD

Skeletal Muscle Ischemia Stimulates an Immune System-Mediated Injury 297
Barry Rubin, MD, Andrew Smith, Shinta Liauw, MSc, Peter Kalman, MD, FRCS(C), Alex Romaschin, PhD, and Paul M. Walker, MD, PhD, FRCS(C)

Reperfusion Changes After Relief of Sustained Renal Ischemia 300
Stephen H. Metropol, MD, Kimberley J. Hansen, MD, Ross P. Holmes, PhD, Samy S. Iskandar, MB, PhD, Jack W. Strandhoy, PhD, and Richard H. Dean, MD, FACS

Inhibition of Angioplasty-Induced Myointimal Hyperplasia with Angiopeptin 302
John V. Conte, MD, Marie L. Foegh, MD, David Calcagno, MD, Bin R. Cai, MD, Peter W. Ramwell, MD, and Robert B. Wallace, MD

Fate of Cyclosporin-Pretreated, Cryopreserved Canine Venous Allografts in the Arterial System 304
Marc P. Posner, MD, FACS, and Paul M. McNeill, MD

The Association Between Elevated Plasma Homocyst(e)ine and Symptomatic Peripheral Arterial Disease 307
E. John Harris, Jr., MD, Lloyd M. Taylor, Jr., MD, FACS, M. Rene Malinow, MD, James M. Edwards, MD, and John M. Porter, MD, FACS

Kinetics of Laser-Assisted Thrombodissolution 309
Joseph D. Labs, MD, Pamela L. Caslowitz, MD, and G. Melville Williams, MD, FACS

Characterization of Laser-Welded Versus Sutured Arterial Anastomoses 311
John D. Edwards, MD, Joseph Megerman, PhD, John V. White, MD, and William M. Abbott, MD

Validation and Feasibility of In Vivo Intravascular Ultrasound Imaging with a New Flexible Catheter 314
Richard F. Neville, MD, Antonio L. Bartorelli, MD, Martin B. Leon, MD, Benjamin Potkin, MD, James Gessert, BS, and Anton N. Sidawy, MD, FACS

Indocyanine Green Dye-Enhanced Welding with a Diode Laser 316
Mehmet C. Oz, MD, Roy S. Chuck, BSE, Jeffrey P. Johnson, BSE, Sareh Parangi, BA, Lawrence S. Bass, MD, Roman Nowygrod, MD, and Michael R. Treat, MD

In Vivo Testing of a New Synthetic Anticoagulant Drug 318
Steven W. Oweida, MD, David N. Ku, MD, PhD, Chih-Min Kam, PhD, and James C. Powers, PhD

In Vivo Antithrombotic Activity of Arg-Gly-Asp-Containing Peptides in a Canine Model of Small-Diameter Synthetic Vascular Graft Thrombosis.....321
Mari Anne McGoff, MD, Brent T. Allen, MD, Gregorio A. Sicard, MD, Charles B. Anderson, MD, and Samuel A. Santoro, MD, PhD

Interleukin-6 Production by Vascular Smooth Muscle Cells: Etiology of Smooth Muscle Cell Quiescence In Vivo?.....323
Bauer E. Sumpio, MD, PhD, and Thomas S. Kupper, MD

Endothelial Cell Attachment to Vascular Grafts and Their Base Polymers 325
Peter B. H'Doubler, Jr., MD, and William M. Abbott, MD, FACS

Alterations in Elastin Gene Expression Are Specifically Associated with a Genetic Susceptibility to Systemic Hypertension 327
John C. Cardone, MD, Charles D. Boyd, PhD, and Susan B. Deak, PhD

Nifedipine Inhibits the Production of Endothelial Cell Mitogens 330
Fuad M. Ramadan, MD, Blair A. Keagy, MD, FACS, Anthony A. Meyer, MD, PhD, FACS, and George Johnson, Jr., MD, FACS

Coculture of Aortic Endothelial and Smooth Muscle Cells 332
Debra J. Graham, MD, J. Jeffrey Alexander, MD, FACS, and Remedios Miguel, MS

Successful Treatment of Abdominal Aortic Graft Infection Using Vascularized Tissue Flaps 335
Reza J. Mehran, MD, Alan M. Graham, MD, FRCS(C), Michael A. Ricci, MD, Nicolas V. Christou, MD, FRCS(C), FACS, and James F. Symes, MD, FRCS(C), FACS

Chapter VII—Transplantation and Its Immunology

Prolongation of Rat Heart Allograft Survival by RS 61443.....337
Randall E. Morris, MD, E. Grant Hoyt, Elsie M. Eugui, PhD, and Anthony C. Allison, MD, PhD

Succinylacetone: A Powerful New Nontoxic Immunosuppressive for Organ Transplantation.....339
Christopher D. Stone, MD, Richard A. Hess, MS, R. Michael Blaese, MD, and Richard E. Clark, MD, FACS

Correction of a Genetic Enzyme Deficiency by Small Intestinal Transplantation.....341
Charles A. LaRosa, MD, Keichu Kimura, MD, and Bernard M. Jaffe, MD, FACS

Hepatocyte Transplantation in Low-Density Lipoprotein Receptor Deficiency in Rabbits.....344
Julio C. Wiederkehr, MD, George Kondos, MD, and Raymond Pollak, MB, FRCS(Ed), FACS

Reversal of Acute Hepatic Failure in a Large Animal by Autologous Hepatocyte Transplantation.....347
Carlos Fasola, MD, Arthur J. Matas, MD, William D. Payne, MD, and John S. Najarian, MD

Survival and Function of Intraperitoneally Transplanted Hepatocytes Attached to a Biodegradable Collagen Matrix in Mutant Rats.....349
Ronald Barbour, MD, A. David Moscioni, PhD, Andrew Felcher, BS, and Achilles A. Demetriou, MD, PhD, FACS

Role of Kupffer Cells in Modulating Cold Ischemic Preservation Injury.....352
Howard N. Sankary, MD, Richard H. Bone, MD, Donald Jensen, MD, Esther Brown, CVT, Preston Foster, MD, Seymour Sabesin, MD, and James Williams, MD

Pretransplant T-Cell Subset Modulation Confers Donor-Specific Unresponsiveness in Rats.....354
Thomas F. Flavin, MD, Judith Shizuru, PhD, Karl Seydel, BA, Anna Wu, BA, E. Grant Hoyt, Keith Ivens, MS, Margaret Billingham, MB, BS, C. Garrison Fathman, MD, and Vaughn A. Starnes, MD

L-Leucyl L-Leucine Methyl Ester Prevents Graft-Versus-Host Disease in Rats.....358
David H. Deaton, MD, Clyde F. Barker, MD, FACS, and Ali Naji, MD, PhD, FACS

Interleukin-6 Production Within the Rejecting Allograft Coincides with Cytotoxic T-Lymphocyte Development 360
Henri R. Ford, MD, Rosemary A. Hoffman, BS, Lori A. McIntyre, BS, and Richard L. Simmons, MD, FACS

Prevention of Graft-Versus-Host Disease and Induction of Donor-Specific Unresponsiveness by Ultraviolet Irradiation of Bone Marrow Allografts.....363
Mark D. Stegall, MD, John Chabot, MD, Paulo Pepino, MD, Tarik Wasfie, MD, Charles Marboe, MD, Keith Reemtsma, and Mark A. Hardy, MD, FACS

Correction of Experimental Diabetic State in Rats by Transplantation of Transformed β-Cells.....365
Roland Stein, PhD, Barry A. Hicks, MD, and Achilles A. Demetriou, MD, PhD, FACS

Elimination of Islet Allograft Primary Nonfunction by Modulation of Recipient Alloimmunity 367
Dixon B. Kaufman, MD, Jeffery L. Platt, MD, and David E.R. Sutherland, MD, PhD, FACS

Colloid Versus Crystalloid Lung Perfusion: Effect on Leukocyte Sequestration 370
Joseph LoCicero III, MD, FACS, Malek Massad, MD, David Kamp, MD, Jun Matano, MD, Rodney Greene, BS, Fouad Khasho, MD, and John DeTarnowsky, BA

Antibiotic Treatment of Donors Prevents Experimental Pneumonia in Recipients of Canine Lung Allotransplantation 372
Robert D. Dowling, MD, Marco Zenati, MD, A. William Pasculle, ScD, Samuel A. Yousem, MD, John M. Armitage, MD, Robert L. Kormos, MD, Bartley P. Griffith, MD, and Robert L. Hardesty, MD

Influence of Bone Marrow-Derived Elements on Renal Allograft Rejection 375
Thoralf M. Sundt III, MD, Philip C. Guzzetta, MD, Takao Suzuki, MD, Bruce R. Rosengard, MD, and David H. Sachs, MD

Restoration of Immunogenicity of UVB-Irradiated Stimulator Cells by the Addition of Lymphokines 378
Soji F. Oluwole, MD, FRCS, FACS, Mark, D. Stegall, MD, Kris Engelstad, MS, Keith Reemtsma, MD, FACS, and Mark A. Hardy, MD, FACS

Both Ly-2+ and L3T4+ T-Cells Mediate Skin Allograft Rejection in Mice with Severe Combined Immunodeficiency 381
Mark W. Shelton, MD, Joseph T. Basler, BA, Linda A. Walp, BS, and Douglas W. Hanto, MD, PhD

Differential Effects of Anti-Interleukin-2 Receptor (IL-2R)-Targeted Therapy on Heart and Kidney Grafts 383
Haruhiko Ueda, MD, Wayne Hancock, MD, Jerzy W. Kupiec-Weglinski, MD, PhD, and Nicholas L. Tilney, MD, FRCS, FACS

Biodistribution of Anti-Interleukin-2 Receptor Monoclonal Antibodies....386
Jerzy W. Kupiec-Weglinski, MD, PhD, Guliano Mariani, MD, Kazuo Tanaka, MD, and Nicholas L. Tilney, MD, FRCS, FACS

Weak Histoincompatibility Also Induces MHC Class II Gene Expression in Murine Cardiac Allografts....388
Dilip S. Kittur, MD, ScD, Renkui Xu, MD, James F. Burdick, MD, and William Adler, MD

Immunosuppressive Factor in Hepatocyte and Liver Cytosol....391
Ginny L. Bumgardner, MD, Nancy L. Ascher, MD, PhD, Sally Chen, BS, Thomas R. Cunningham, BS, William D. Payne, MD, and Arthur J. Matas, MD

Renal Vascular Reactivity and Renal Prostaglandins in Cyclosporin Nephrotoxicity....394
Freya R. Schnabel, MD, Richard B. Wait, MD, PhD, and Kim U. Kahng, MD

Chapter VIII—Oncology and Associated Immunology

Kupffer Cell Production of Tumor Necrosis Factor Mediates Killing of a Murine Colon Adenocarcinoma....396
Steven A. Curley, MD, Jim Klostergaard, PhD, Leslie Wang, MS, and Mark S. Roh, MD

Induction of Tumor Growth in Diffusion Chambers by Partial Hepatectomy....398
Ralph J. Doerr, MD, Timothy E. Gundlach, MD, Eddie Perkins, MS, and Manuel H. Castillo, MD

Primary Colorectal Carcinoma Cell Lines Contain Subpopulations with Invasive Properties 400
Noel N. Williams FRCS(I), John M. Daly, MD, FACS, and Meenhard Herlyn, DVM

Overgrowth of Metastatic Cells in a Primary Tumor Is Mediated by Nonmetastatic Cells via Transforming Growth Factor-Beta 403
Dan Theodorescu, MD, and Robert S. Kerbel, PhD

Expression and Shedding of mdr-1 Antigen by Variants of the Murine B16 Melanoma 406
Douglas D. Taylor, PhD, Cicek Gercel Taylor, PhD, and James L. Weese, MD, FACS

Reversal of Cancer Cachexia by Antibodies to Interferon-Gamma but Not Cachectin/Tumor Necrosis Factor 408
Howard N. Langstein, MD, Douglas L. Fraker, MD, and Jeffrey A. Norton, MD, FACS

Muscle-Sparing Effect of Clenbuterol in Tumor-Bearing Rats Maintained on Total Parenteral Nutrition 411
William T. Chance, PhD, Lequn Cao, MD, Fu-sheng Zhang, MD, Teri Foley-Nelson, PhD, and Josef E. Fischer, MD, FACS

Growth Hormone Inhibits Tumor Metastasis 413
Robert B. Donoway, MD, and Michael H. Torosian, MD

Somatostatin Analogue (201-995) and α-Difluoromethylornithine Inhibit Growth of Human Carcinoid Tumor 415
Erick Allen, BA, B. Mark Evers, MD, Courtney M. Townsend, Jr., MD, FACS, Tatsuo Uchida, MS, and James C. Thompson, MD, FACS

Predictive Value of Flow Cytometry in Node-Negative Breast Cancer 417
David J. Winchester, MD, Douglas M. Merkel, MD, Carey Z. August, MD, Alfred W. Rademaker, PhD, Debra M. Wruck, RN, and Rosemary B. Duda, MD

Cryosurgery for Colorectal Cancer Liver Metastases: An Experimental Study..... 419
T. S. Ravikumar, MD, FRCS(EdC), Vinnie King, and Glenn Steele, Jr., MD, PhD, FACS

Photodynamic Therapy Stimulates Murine Peritoneal Macrophages to Produce Tumor Necrosis Factor 421
Steven Evans, MD, Wilbert Matthews, BS, Roger Perry, MD, Douglas Fraker, MD, Jeffrey Norton, MD, FACS, and Harvey Pass, MD, FACS

Reduction of Pulmonary Metastases Following In Vivo Administration of Anti-CD3, Interleukin-2, and Tumor Necrosis Factor-α in Mice ..423
Stephen C. Yang, MD, Kim D. Fry, Elizabeth A. Grimm, PhD, and Jack A. Roth, MD, FACS

Specific Cytolytic Activity in Survivors of Experimental Murine Hepatic Metastases After Treatment with Active Specific Immunotherapy and Low-Dose Interleukin-2 426
Pedro J. Arroyo, MD, Yoav Barnavon, MD, Jerry A. Bash, PhD, and Marc K. Wallack, MD, FACS

In Vivo and In Vitro Effects of Murine Tumor-Infiltrating Lymphocyte Restimulation by Anti-CD3 428
Timothy J. Eberlein, MD, FACS, Anthony F. Massaro, MD, Amy L. Rubinstein, BA, Frank J. Leonard-Vidal, MD, Markus Zuber, MD, Carolyn Selleck, BS, and Deric D. Schoof, PhD

Generation of Rapidly Proliferating Tumor-Infiltrating Lymphocytes with Cytolytic Specificity and Therapeutic Efficacy in Mice 431
Richard J. Barth, Jr., MD, James J. Mulé, PhD, Steven Bock, MD, and Steven A. Rosenberg, MD, PhD, FACS

Role of Prostaglandins in Surgically Induced Enhancement of Tumor Growth 433
Lee M. Ellis, MD, Edward M. Copeland III, MD, FACS, Kirby I. Bland, MD, FACS, Donald S. Plumley, MD, V. Suzanne Klimberg, MD, Wiley W. Souba, MD, ScD, and Harry S. Sitren, PhD

The Antiretroviral Effects of Lymphokine-Activated Killer Cells.....435
Douglas S. Tyler, MD, S. David Stanley, BS, Elizabeth A. Bumpas, BS, John A. Bartlett, MD, Dani P. Bolognesi, PhD, and Kent J. Weinhold, PhD

Generation of Autologous Tumor-Specific Cytotoxic T-Cells Using Allogeneic Melanomas: Restriction by a Dominant HLA-A Region Antigen.....438
Nancy J. Crowley, MD, Timothy L. Darrow, PhD, and Hilliard F. Seigler, MD, FACS

Autologous Tumor Cells Modified by Newcastle Disease Virus Induce T-Cell–Mediated Immune Response in Colorectal Cancer Patients ...441
Peter Hohenberger, MD, Peter Schlag, MD, Gunhild Mechtersheimer, MD, Jürgen Walther, MD, Peter Möller, MD, Christian Herfarth, MD, FACS, and Volker Schirrmacher, PhD

Modulation in Differentiation of Colorectal Carcinoma Cell Lines by an H-*ras* Oncogene 443
John C. D'Emilia, MD, Ian C. Summerhayes, PhD, and Glenn Steele, Jr., MD, PhD

Oncogene-Induced Resistance of a Human Colorectal Carcinoma to Natural Killer Cell Lysis 445
Teresa Barlozzari, PhD, Darius J. Bagli, MD, CM, John C. D'Emilia, MD, Ian C. Summerhayes, PhD, and Glenn Steele, Jr., MD, PhD

Genetic Analysis of Human Tumor Necrosis Factor-α Promoter Function in Human Tumor-Infiltrating Lymphocytes and Other Cell Types..... 448
James S. Economou, MD, PhD, Richard Essner, MD, Kristina Rhoades, BS, Tesshi Yamada, MD, Stephen G. Swisher, MD, E. Carmack Holmes, MD, FACS, Sidney H. Golub, PhD, and Donald L. Morton, MD, FACS

Nuclear Protein Binds Intron 4 of the p53 Oncogene..... 450
Samuel W. Beenken, MD, FRCS(C), and Guillermina Lozano, PhD

Chapter IX—Gynecology and Obstetrics

Success of Transvaginal Ultrasonography in Assisted Reproductive Technologies 453
Mark E. Gentry, MD, William L. Gentry, MD, James E. Sumners, MD, and Carolyn B. Coulam, MD

Ultrasound-Guided Uterine Curettage 455
Dumrong Tangchitnob, MD, Hyungkoo Yun, MD, Helene B. Leonetti, MD, and James A. O'Leary, MD

An Overview of Pelviscopic Surgery at Methodist Hospital 457
Earle U. Robinson, Jr., MD

Electrodiagnosis in Pelvic Neuropathy..... 459
J. Thomas Benson, MD, FACOG

Relationship of Urethral Closure Pressure and Pudendal-Perineal Neuropathy 461
Anita Pillai-Allen, MD, J. Thomas Benson, MD, Andrew Agosta, MD, Elizabeth McClellan, RN, and John R. Woods, PhD

Immunocytochemical Determination of the Estrogen and Progesterone Receptor Status of Breast Cancer 462
John Butler, MD, Hernan Vargas, MD, David Bernstein, MD, and William McDonald, MD

Evaluation of a Stillborn Protocol 464
Anita Krishna Das, MD, James Sumners, MD, and Carolyn B. Coulam, MD

Shoulder Dystocia and the McRoberts Maneuver 467
James A. O'Leary, MD, Neil Pollock, MD, and Helene B. Leonetti, MD

Vaginal Birth After Two or More Cesarean Sections: A Five-Year Experience 469
Richard S. Hansell, MD, Kathleen B. McMurray, MD, and Gordon R. Huey, MD

Single- versus Multiple-Dose Pipercillin in High-Risk Primary Cesarean Section 471
Helen B. Leonetti, MD, Hyungkoo Yun, MD, James A. O'Leary, MD, and Alan-Lin Greenberg, MD

Uterine Incision Closure with Absorbable Staples During Cesarean Sections 473
Iffath A. Hoskins, MD, and Bruce K. Young, MD

Chapter X—Neurological Surgery

Modulation of Human Cerebral Vascular Tone by the Vascular Endothelium 476
Stephen M. Papadopoulos, MD, Lisa Gilbert, BA, and R. Clinton Webb, PhD

Intracranial Pressure Correlation with cytochrome aa3 and Hemoglobin Redox Measured by Noninvasive Near Infrared Spectrophotometry .. 478
Manuel Dujovny, MD, Alfredo Martinez-Coll, MD, James I. Ausman, MD, PhD, Alfred Perlin, PhD, and Melville Stewart, PhD

Hyperthermic Preconditioning Improves Recovery from Concussive Spinal Cord Trauma in Rats 480
O. Del Curling, Jr., MD, David J. Gower, MD, Michael Tytell, PhD, and David L. Kelly, Jr., MD

Intracranial Hypertension Following Traumatic Brain Injury Associated with Shock and Resuscitation 483
Robert J. Hariri, MD, PhD, Jamshid B. G. Ghajar, MD, PhD, Douglas S. Cohen, Steven A. Fiamengo, MD, John M. Emery III, MD, William G. Jones II, MD, and Joseph P. Minei, MD

Naloxone in Spinal Cord Injury 485
Toshihisa Sakamoto, MD, and William W. Monafo, MD

Laboratory Evaluation of Permanently Implanted Iodine-125 Seeds for Brachytherapy of Malignant Glial Tumors 488
Tim J. Watt, MD, Leslie-Ann Zotter, Gerald A. King, MD, and Jeffrey A. Winfield, MD, PhD

Intracarotid Infusion of Leukotriene C_4 Increases Blood-Tumor Barrier Permeability in Experimental Rat Brain Tumors.....490
Wesley A. King, MD, Keith L. Black, MD, Kiyonobu Ikezaki, MD, Donald P. Becker, MD, and Arthur W. Toga, PhD

Adoptive Immunotherapy of Recurrent Glioma Using Interleukin-2–Stimulated Lymphocytes 493
Kevin O. Lillehei, MD, Carol A. Kruse, PhD, Dawn H. Mitchell, PhD, Stephen D. Johnson, MD, and E. Larry McCleary, MD

Studies on Mitogenic Factors Secreted by Human Medulloblastoma Cells In Vitro.....496
Daniel R. Buskirk, PhD, and Robert B. Snow, MD, PhD

Growth Factor Receptors on Brain Tumors.....498
Walter A. Hall, MD, Richard J. Youle, PhD, and Marsha J. Merrill, PhD

Epstein-Barr Virus–Immortalized Peripheral Blood Lymphocytes from Astrocytoma Patients Contain Supernatant Antibodies Highly Reactive with Glioma Antigens 501
Duncan K. Fischer, MD, PhD, Raj K. Narayan, MD, FACS, Mohamed-Salah Abaza, MS, Masafumi Matsuda, MD, and M. Zouhair Atassi, PhD

Chapter XI—Orthopaedic Surgery

The Double-Plate Compound Osteosynthesis as a Joint-Preserving Device in the Management of Pathologic Fractures of the Femur and Fractures in Elderly Patients with Severe Osteoporosis.....505
Wilhelm Friedl, MD, Wolfgang Ruf, MD, and Tillmann Mischkowsky, MD

Diagnosis of Occult Scaphoid Fractures by Intrasound Vibration.....508
John G. Finkenberg, MD, Eric Hoffer, MD, Cindy M. Kelly, MD, Daniel M. Zinar, MD, and Paul H. Johanson, MD

Composite Bone Graft for Closure and Stabilization of Open Bony Defects.....511
Mutaz B. Habal, MD, FRCS(C), FACS

A Comparison of Femoral Rods in Static and Locking Conditions...513
Michael S. Weng, MD, John A. Szivek, PhD, and Robert R. Karpman, MD

Torsional Strength of Titanium and Stainless Steel Plate Fixation Systems.....515
Aaron C. Cook, MD, and Michael W. Chapman, MD

Biomechanics of Passively Stretched Muscle: Viscoelasticity versus Reflex Effects.....516
James D. Dalton, Jr., BS, Anthony V. Seaber, and William E. Garrett, Jr., MD, PhD

Effect of Passive Tension During Immobilization on Muscle Biomechanical Properties.....518
Robert C. Kime III, MD, Anthony V. Seaber, and William E. Garrett, Jr., MD, PhD

Clinical Use of Green Light Photoplethysmography 520
Lee E. Ostrander, PhD, Weijia Cui, MS,
and Bok Y. Lee, MD, FACS

Localized Microvascular Changes After Three Hours of Skeletal Muscle Reperfusion 523
Joseph P. Cullen, MD, Anthony V. Seaber,
and James R. Urbaniak, MD

Effect of Ischemia on Microcirculation Thrombosis in Skeletal Muscle 525
Langdon A. Hartsock, MD, Anthony V. Seaber,
and James R. Urbaniak, MD

Effects of Venous Occlusion in the Skeletal Muscle After Various Periods of Ischemia 527
Konstantinos N. Malizos, MD, Anthony V. Seaber,
and James R. Urbaniak, MD

Chapter XII—Otorhinolaryngology

Regional and Systemic Autologous Lymphokine-Activated Cytotoxicity of Head and Neck Cancer Patients 530
James K. Bredenkamp, MD, Fred R. Leess, DDS, MD,
Alan Lichtenstein, MD, and Robert A. Mickel, MD, PhD

Characterization of Transforming Growth Factor-β Binding and Action on Squamous Cell Carcinoma Cells 533
Shawn C. Jones, MD, Gregory S. Schultz, PhD,
and Serge Martinez, MD, FACS

Role of Systemic Hematocrit in Survival of Skin Flaps in Pigs 536
Sai S. Ramasastry, MD, FRCS(E), Krishna Narayanan, MD, Michael F. Angel, MD, and J. William Futrell, MD, FACS

Biochemical Changes in Canine Venous Flaps 538
Michael F. Angel, MD, Cary G. Mellow, FRACS, Kenneth R. Knight, PhD, Raymond F. Morgan, MD, and Bernard McC. O'Brien, CMG, FRACS

The Technique of Computerized Microphotometry 540
P. Perry Phillips, MD, Thomas V. McCaffrey, MD, PhD, and Eugene B. Kern, MD, MS

Effects of Helium-Neon Laser Irradiation on Neuritic Outgrowth of Olfactory Neuroepithelial Explants from Rat Fetuses.....543
Andrew F. Mester, MD, James B. Snow, Jr., MD, and Paul Shaman, PhD

Laryngeal Framework Surgery: Objective Assessment in an Animal Model 545
David H. Slavit, MD, Richard J. Lipton, MD, and Thomas V. McCaffrey, MD, PhD

Surgical Exposure of the Nasopharynx: Anatomic Basis for a Transfacial Approach.....547
Moises A. Arriaga, MD, and Ivo P. Janecka, MD, FACS

Chapter XIII—Pediatric Surgery

Helper T-Cell Depletion Augments Cytotoxicity to Neuroblastoma ..550
Robert K. Sigal, MD, Michael Lieberman, MD, John Reynolds, FRCS(I), Jian Shou, MD, and John M. Daly, MD, FACS

Growth Factors and Growth Inhibitors May Modulate Fetal Development by Regulating Class I Expression 553
Edward M. Barksdale, Jr., MD, Patricia A. Lynch, BA, Richard A. Flavell, PhD, and Patricia K. Donahoe, MD, FACS

Transposition of an Early Adult Wound to a Fetal Rabbit Wound Site Does Not Result in Recruitment of Fibroblasts 555
Bret D. Borchelt, BS, Thomas M. Krummel, MD, FACS, John W. Cawthorn, BS, Brian L. Thomas, MD, Robert F. Diegelmann, PhD, and I. Kelman Cohen, MD, FACS

Histology of the Open Fetal Rabbit Wound 558
Jeffrey H. Haynes, MD, Thomas M. Krummel, MD, FACS, Peter F. Schatzki, MD, James D. Dunn, MD, Louise C. Flood, MScAgr, I. Kelman Cohen, MD, FACS, and Robert F. Diegelmann, PhD

Dopamine Unresponsiveness of Isolated Vascular Smooth Muscle Cells from the Infrarenal Aorta of the Immature Chicken Embryo 560
Thom E. Lobe, MD, FACS, J. Marc Simard, MD, and Sabrina Trieff

Alteration of Intracranial Perfusion Pressure During Extracorporeal Membrane Oxygenation 563
Robert P. Foglia, MD, FACS, H. Scott Bjerke, MD, E. Stanton Adkins, MD, Robert Kelly, MD, J. Duncan Phillips, MD, Milton Chavez, MD, and Larry Barcliff, RRT

Elevated Levels of Endotoxin, Oxygen-Derived Free Radicals, and Tumor Necrosis Factor During Prolonged Extracorporeal Circulation: Indicators of Subclinical Sepsis? 565
Jan Simoni, DVM, PhD, Mark Dickson, MD, Maureen Hirthler, MD, and Jane F. Goldthorn, MD, FACS

Endotracheal Stents for the Treatment of Induced Tracheomalacia in Piglets 569
Eric A. Mair, MD, David S. Parsons, MD, FAAP, Adrian F. Van Dellen, DVM, and Kevin P. Lally, MD

Pulmonary Function Following Primary Closure of Abdominal Wall Defects in the Newborn Is Improved with Bronchodilators.....571
Don K. Nakayama, MD, Rebecca Mutich, RRT, Marc I. Rowe, MD, FACS, and Etsuro K. Motoyama, MD

Depression of Bile Flow and Sulfobromophthalein Clearance During Short-Term Total Parenteral Nutrition and Reversal with Ursodeoxycholic Acid 575
Catherine M. Cosentino, MD, John B. Das, MB, PhD, FRCS, Ghaus G. Ansari, MS, and John G. Raffensperger, MD, FACS

Pentoxifylline Improves Blood Flow to Ischemic Intestine 577
P. Cameron Mantor, MD, David W. Tuggle, MD, Irwin Brown, MD, and William P. Tunell, MD, FACS

Bacterial Translocation After Small Intestinal Transplantation.....579
Alfonso L. Velasco, MD, Raymond K. Chung, Karin L. McGowan, PhD, Carmen K. Steigman, MD, and Moritz M. Ziegler, MD, FACS

Chapter XIV—Plastic Surgery

Ultraviolet B Suppression of Sensitivity to Skin Allografts.....582
Stephen E. Sullivan, BS, Jonathan Saunders, MD, David Lautz, BA, and Lawrence J. Gottlieb, MD

Rapid Formation of Anchoring Fibrils and Basement Membrane After Placement of Dermal-Epidermal Composite Cultured Skin Substitutes on Full-Thickness Burn Wounds.....584
Matthew L. Cooper, MD, John F. Hansbrough, MD, FACS, Steven T. Boyce, PhD, and Tanya J. Foreman, BS

Histamine and Xanthine Oxidase Activity in a Human Model of Ischemia-Reperfusion Injury.....587
Hans P. Friedl, MD, David J. Smith, MD, FACS, Philip D. Thomson, PhD, Dean S. Louis, MD, Gerd O. Till, MD, and Peter A. Ward, MD

Pathophysiology of Ischemic Skin Flaps and Allopurinol 589
Luis A. Picard-Ami, Jr., MD, and Carolyn L. Kerrigan, MD, FRCS(C)

Skin Flap Ischemia and Altered Neutrophil Function.....593
Chen Lee, MD, Carolyn L. Kerrigan, MD, FRCS(C), and Jose M. Tellado, MD

In Vivo Ovine Flap Model to Evaluate Surgical Infection and Tissue Necrosis.....596
Roberta Mann, MD, Linda G. Phillips, MD, FACS, Hugo A. Linares, MD, Lillian D. Traber, RN, John P. Heggers, PhD, and Martin C. Robson, MD, FACS

Nonsurgical Correction of Ear Deformities in Rabbits with Papain...598
William I. Douglas, MD, Venkat K. Rao, MD, FACS, Suzann M. Gruel, BS, and Donald E. Burris, PhD

Recovery of Contractile Function in Nerve Allografted, Cyclosporin A–Treated Primates 600
Joel S. Fish, MD, James R. Bain, MSc, MD, Nancy H. McKee, MD, FRCS(C), FACS, and Susan E. MacKinnon, MD, FRCS(C), FACS

Vascularized Nerve Graft Model in the Rat 602
Gurhan Ozcan, MD, Roya Maani, MD,
and Saleh Shenaq, MD, FACS

Experimental Studies on the Regulation of Craniofacial Growth 606
Steven R. Buchman, MD, Isaac L. Wornom III, MD,
Linton A. Whitaker, MD, and Scott P. Bartlett, MD

An In Utero Model of Craniosynostosis 608
Brian W. Duncan, MD, N. Scott Adzick, MD,
Scott M. Bradley, MD, Michael T. Longaker, MD,
Timothy M. Crombleholme, MD, David G. Levinsohn, MD,
Brent R.W. Moelleken, MD, Jane Chua, DMD,
Michael R. Harrison, MD, FACS,
and Leonard B. Kaban, DMD, MD, FACS

Tissue Expanders in Microvascular Surgery: Acute Intraoperative
Arterial Elongation 610
Amado Ruiz-Razura, MD, Gary S. Branfman, MD,
and Benjamin E. Cohen, MD, FACS

Fetal Wounds Do Not Contract In Utero 613
Thomas M. Krummel, MD, FACS, H. Paul Ehrlich, PhD,
Jeffrey M. Nelson, MD, Barbara A. Michna, MD,
Brian L. Thomas, MD, Jeffrey H. Haynes, MD,
I. Kelman Cohen, MD, FACS, and Robert F. Diegelmann, PhD

Covered Fetal Excisional Wounds Heal by Tissue Regeneration 615
Jeffrey A. Ditesheim, MD, Joseph B. Delozier, MD,
Riley S. Rees, MD, FACS, Kenneth Broadley, PhD,
Jeffrey M. Davidson, PhD, and Lillian B. Nanney, PhD

Growth Factor Solutions for Wound Treatment in Pigs.....618
Elof Eriksson, MD, FACS, Karl Breuing, MD,
Laurie B. Johansen, BS, and Don R. Miller, PhD

Evaluation of PDGF-Supplemented Dressings 621
W. Thomas Lawrence, MPH, MD, FACS,
Gregory G. Solomon, BS, G. William Link, PhD,
and Albert J. Banes, PhD

Collagenase and PDGF Modulate Chronic Wound Repair 624
Anthony C. Sank, MBChB, Maria Chi, BS,
Tom Shima, BS, Reuven Reich, PhD, and
George R. Martin, PhD

Fibroblast Growth Factor Inhibits Wound Collagen Synthesis 627
Spiro A. Lazarou, MD, Jonathan E. Efron, BA,
Toby Shaw, MD, Hannah L. Wasserkrug, BA,
and Adrian Barbul, MD, FACS

Effect of bFGF on the Inhibition of Contraction Caused by
Bacterial Contamination 629
Brian D. Stenberg, MD, Linda G. Phillips, MD, FACS,
James A. Hokanson, PhD, John P. Heggers, PhD,
and Martin C. Robson, MD, FACS

Effect of Retinoic Acid and Cortisone on Wound Healing, Cell-
Mediated Immunity, and Survival in Burned Mice 631
Lisa L. Sowder, MD

T-Lymphocytes Are Required for Wound Healing 634
Robert J. Breslin, MD, Adrian Barbul, MD, FACS,
Janet M. Woodyard, MD, Hannah L. Wasserkrug, BA,
and Gershon Efron, MD, FRCS, FACS

Effects of Local Tumor Necrosis Factor on Wound Healing 637
Gary D. Salomon, MD, Attan Kasid, PhD,
Elaine Director, BS, Tom Talbot, MS, Anthony Sank, MD,
and Jeffrey A. Norton, MD, FACS

Reverse Triiodothyronine: Inactive Metabolite or Active Growth Factor?.....639
Dane C. Burklund, MS, David H. Frank, MD, FACS, Jack C. Fisher, MD, FACS, and Paul D. Saltman, PhD

Effects of Long-Term Ultraviolet Irradiation on Wound Healing.....643
Stephen F. Davidson, MD, Paul J. Talbot, MS, and Suman K. Das, MD, FRCS, FRCS(E), FACS

Chapter XV—Reproductive Biology

A New Model of Intrauterine Growth Retardation.....645
Tom Tracy, Jr., MD, Patrick Bailey, MD, Mary Goerke, BA, Farouk Sadiq, MD, Sherin Devaskar, MD, Robert Connors, MD, FACS, and Thomas Weber, MD, FACS

Pentoxifylline Stimulates the Movement Characteristics of Cryopreserved Sperm.....648
Wayne J.G. Hellstrom, MD, and Suresh C. Sikka, PhD

Effect of the Addition of Leuprolide to Systemic Chemotherapy on Postchemotherapy Fertility in Male Rats 651
Daniel B. Rukstalis, MD, Phyllis Huettner, MD, Kelledy Manson, BA, and Kevin R. Loughlin, MD, FACS

Effect of Chronic Cyclosporin Treatment on Rat Testicular Cell Populations.....654
Gordon J. Kinzler, MD, John S. Wheeler, Jr., MD, Talat Khan, PhD, Robert C. Flanigan, MD, and T. Vincent Shankey, PhD

Prevention of Reperfusion Injury After Acute Testicular Ischemia: Role of Heparin, Oxypurinol, and Superoxide Dismutase.....656
Saeed Akhter, MD, MPH, Khalid Butt, MD, Sundra Sridhar, MD, Nachum Katlowitz, MD, Kris Lindsay, MD, Masooma Saeed, MD, Joseph Cunningham, MD, and Gilbert Wise, MD

Effects on Testicular Function of the Fowler-Stephens Technique for Correcting the High Undescended Testis 658
F. Tansu Salman, MD, E. Stanton Adkins, MD, and Eric W. Fonkalsrud, MD, FACS

An Estrogen-Binding Protein Unique to the Bladder 661
Linda Chamberlin, PhD, Donna Scott, BA, and Gerald Sufrin, MD

Effects of Nifedipine and BAY K8644 on Pharmacologic Stimulation of the Diabetic Rat Bladder 663
John A. Belis, MD, FACS, Robert M. Curley, BS, and Thomas J. Rohner, Jr., MD, FACS

Parameters of Detrusor Contractility: I. Effects of Hysteresis and Bladder Volume in an In Vitro Whole Rabbit Model.....665
Steven A. Kaplan, MD, William C. Brown, MD, and Jerry G. Blaivas, MD

Correlation of Intracellular Free Calcium with the Metabolic Response of the Rabbit Urinary Bladder to Bethanechol.....668
Robert M. Levin, PhD, Penelope A. Longhurst, PhD, and Alan J. Wein, MD

Chapter XVI—Urology

Methoxypsoralen Therapy of Transitional Cell Carcinoma 671
Sam D. Graham, Jr., MD, Judith Tuck, BS,
Lynda Watts, MA, Douglas Redd, MD, Douglas Nyhoff, MD,
and Kwok To Yue, PhD

Flow Cytometry as a Predictor of Response and Progression in Patients with Superficial Bladder Cancer Treated with Bacillus Calmette-Guerin.....675
Paul R. Bretton, MD, Harry W. Herr, MD,
Marek Kimmel, PhD, William R. Fair, MD,
Willet F. Whitmore, Jr., MD, and Myron R. Melamed, MD

Correlation of Histopathologic, Flow Cytometric, and Quantitative Fluorescent Image Analysis Findings in Benign and Malignant Prostate Cancer.....677
Steve W. Waxman, MD, Mark J. Noble, MD, FACS,
Saing H. Lee, MD, Chan H. Park, MD, Terrill K. Smith,
Rebecca A. Bass, MS, George P. Hemstreet, MD, PhD, FACS,
John D. Foret, MD, FACS, John W. Weigel, MD, FACS, and
Winston K. Mebust, MD, FACS

Prognostic Significance of Nuclear DNA Content in Localized Prostatic Adenocarcinoma, Determined by Image Analysis 680
Jill M. Peters, MD, Brian J. Miles, MD, FACS,
John D. Crissman, MD, and Joseph C. Cerny, MD, FACS

Does Cytoreductive Surgery Impede the Metastatic Process?.....682
Gedas Grinis, MD, Michael Shaw, MS,
Paul Targonski, MPH, Marvin Rubenstein, PhD,
and Patrick Guinan, MD, FACS

Characterization and Modulation of Renal Gene Activity in Response to Acute Renal Ischemia and Reperfusion.....684
John P. Connor, MD, Ralph E. Buttyan, PhD, Carl A. Olsson, MD, FACS, Kathleen O'Toole, MD, Po-Ying Ng, and Ihor S. Sawczuk, MD

Documentation of Cellular Proliferation During Compensatory Renal Growth.....686
Kenneth S. Ring, MD, Ihor S. Sawczuk, MD, Mark G. Bandyk, MD, MS, Frieda Karp, BS, and Mitchell C. Benson, MD

Distribution of Liposome-Carried Tritiated Thymidine in Nude Mice Bearing Human Renal Cell Carcinoma Xenografts.....689
Gregory Halenda, MD, Robert M. Curley, BS, and Mark V. Jarowenko, MD

In Vivo Preclinical Assessment of Potentially Synergistic Cytotoxic Therapeutic Strategies in Human Bladder Carcinoma.....692
Thomas E. Keane, MB, FRCS(I), Jonathan T. Donaldson, MD, and Philip J. Walther, MD, PhD, FACS

Epidermal Growth Factor and Bladder Cancer: Effects of Urinary pH.....694
Edward M. Messing, MD, FACS, and Catherine Wartgow, BS

Localization and Role of Protease Cathepsin B in Human Bladder Tumors.....696
Robert E. Weiss, MD, Jon A. Jacobson, BS, and Brian C. S. Liu, PhD